

I have not Darwin's book at hand while I write, but does he not mention the Germander Speedwell?

Bedford, December 9

ARTHUR RANSOM

### Shadows after Sunset

FIVE years ago my attention was attracted to the phenomenon now under discussion. I was then at San Fernando, and could perceive almost every evening the rosy and blue or black and white rays converging to a point apparently below the horizon. I was able to trace the rays from west to east many times, and frequently also to trace the black or blue spaces to visible prominences in the cumuli in the western horizon, to whose shadows there is no doubt the rays were due, as they swept the sky with such a rapidity; and they were so persistently traceable to the bright bordered cumuli, that even though there were any hills in the direction of the setting sun (which there were not), the phenomenon could not be attributed to them. Besides, I have observed it when off the coast of Portugal, which leaves the hill shadows out of the question, as the observations were made in the (two consecutive) evenings. Though the sky is too cloudy in this part of Spain, by looking at the right place at the right time I have been able to see it many times. The mock sun described by Mr. Rand Capron in the last number of NATURE (p. 102) was seen once by me, but the phenomenon was but little conspicuous. The rays are seldom equidistant.

Naval School, Ferrol, Spain, December 5

PROF. DIER

### Complementary Colours

IN connection with recent correspondence in NATURE it may be worthy of remark that I have often noticed the appearance of strong complementary colours in water from contrast-effects, in the case of a wave, breaking on the shore. If the water is properly illuminated so as to be of a decidedly green tinge, the crest of the wave often appears of a delicate pink, and this even in strong sunlight. The purplish hue of cloud-shadows on the ocean is also a familiar example of the phenomenon under discussion.

CHAS. R. CROSS

Mass. Institute of Technology, Boston, November 23

### An Extraordinary Lunar Halo

I PURCHASED a copy of NATURE of November 30 in the hopes of finding some account of a lunar halo observed by myself and several friends on Saturday night, November 18, about 10.30. Instead of which I find that Mr. Barkas has sent you an account of one seen by him on the following Monday. His description tallies almost exactly with the one seen by me, with the exception of date and hour. Can any of your readers give any information respecting them?

S. A. GOOD

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### "Lepidoptera of Ceylon"

ALLOW us to correct a slight error in the address of the President of the Royal Society, as reported in NATURE last week. He speaks of the "completion" of the "Lepidoptera of Ceylon" having been presented to the Library, whereas it is only the first of the three volumes of that work which is as yet complete. Part vi., being the second part of the second volume, will be ready next week, and the succeeding parts will follow in due course. The error is not very important, but might mislead subscribers and others interested in the work.

L. REEVE AND CO.

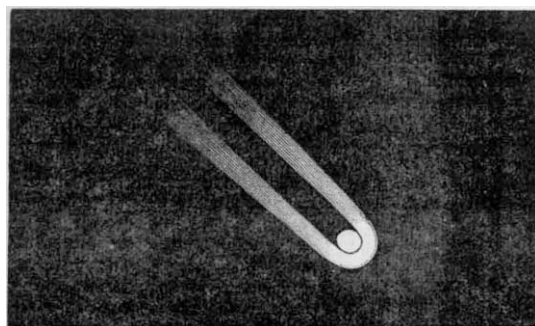
5, Henrietta Street, Covent Garden, London, W.C.,  
December 11

### THE COMET

WHEN the comet was first seen on September 16 at 22h. 45m. its appearance was most symmetrical, in colour a most intense white. The sketch shows the appearance on such a scale that the nucleus would have a diameter of about 45", by a comparison made at the time with a sun-spot, the exact size of which has since been kindly furnished by the Astronomer Royal from the Greenwich photographs of the sun. The direction of the comet was to the centre of the sun, as far as could be estimated. On

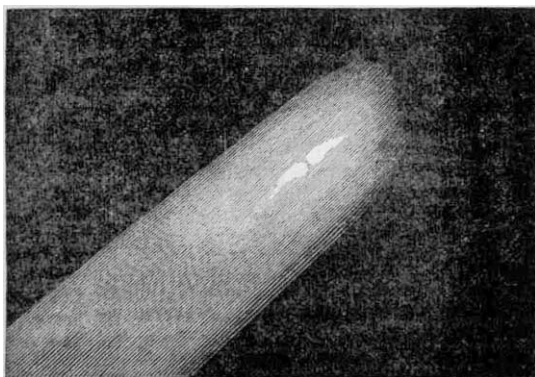
p. 81 of this volume there is a diagram of the sun and the comet; the size of the comet as there given compared with the sun is about as it appeared; and if one imagines the sketch I give, reduced to the length of the sign for the comet on the diagram, and placed some two diameters of the sun to the south-west and *radial*, he will have a good idea of the appearance on the morning of September 17.

The general appearance of the comet has been so fully described that I will confine myself to some points that I have observed with the three-foot reflector, which I did not get to bear, however, till October 29 at 16h. 40m.



September 16, 22h. 45m.

Although the moon was very bright the comet was well seen, the nucleus appearing as an oval bright spot fading into the head gradually (this is called the nucleus in my note-book, but subsequent observations show it ought to be called the bright part of the head). The most noticeable feature of this morning's observation is the peculiar termination to the head; at the n.f. side of head (see sketch for October 30), there was noted an absence of light, while the extension on the south side was particularly noticed, there may have been some extension on the corresponding north side, but I have not recorded it, if so the appearance would then be similar to that in sketch No. 2 (NATURE, vol. xxvii. p. 109). This oblique termi-



October 30, 16h. 50m.

nation appears in all my sketches made at the telescope. The length of this nucleus or bright part of head was measured as 55". An absence of stripes in the tail was particularly noticed, if there was a difference the south side was a little the brightest.

On this morning the brightness of the moonlight had a marked effect on the visibility of the broader part of the tail, so much so that it was easier to trace it in the sky with the naked eye, than with either a binocular, a 3-inch achromatic, or a 3-foot reflector.

The following morning, October 30, 16h. 50m., the appearance of the comet was so altered that either a

remarkable change had taken place, or the details had not been properly made out on the previous morning—the head had become brighter, narrower, and longer, with a decided nucleus, situated a little less than half way from the following end; further examination showed a break in the line of light forming the head, a comparatively dark space splitting it in two, the nucleus being on the border of this space, while a brightening of the head near the other side of this space gave an appearance of another nucleus. The sketch for this date shows the position of these brighter parts or nuclei, and the space between.

A careful measurement at 17h. 41m. gives the pos. angle of the line of light forming head as  $115^{\circ} 5'$ . The distance of the nuclei was  $11'' 5$ , and the width of the head  $10''$ . On November 1, 17h. 18m., the pos. angle of head was  $117^{\circ} 5'$ , the breadth of the head  $11''$ , and the length  $100''$ , the general appearance being as that given for October 30, excepting that on this morning a brightening is recorded as observed at the extremity of the following part of the head, giving a tri-nuclear appearance. Subsequent observations made at intervals (on November 5, 8, 9, 10, and 17) show little deviation from the last sketch. Particular attention has not since been given to eye-observations, as the 3-foot has been used on these dates for photography (with doubtful advantage). The brightness of this comet is, as far as can be judged from a comparison of similar exposures, about the same as the great comet of 1881. One minute gives an image faint, but certain, about 25 minutes' exposure gives an intense image of the head and a trace of the tail; but the result is not at present worth the great trouble it causes. One of the November 9 plates shows the dark space in the head, and this is all that can be said for it; longer exposures without a proper means of following the motion of the comet give only a trail. This however I propose to get over by having motions adapted to the plate-holder and an eyepiece attached to the holder for the purpose of running a second image of the comet, taken out of the cone of rays from the speculum by another diagonal mirror properly placed for the purpose.

A. AINSLIE COMMON

Ealing, December 4

In a clear sky at 4.50 a.m. November 26, not a vestige of the comet was to be seen by the naked eye, though its position was known exactly. On applying a telescope to the spot the nucleus appeared as a round nebula, with four small stars near it; as for the comet's tail, I presume it was "left behind," for no trace of it could be discerned, except by the eyes of the imagination. This is singularly corroborative of the statement that has appeared in these columns, viz. that the moonlight obscures the comet, although it seems to be doubted.

Oxford, December 5

FRANK STAPLETON

## ILLUSTRATIONS OF NEW OR RARE ANIMALS IN THE ZOOLOGICAL SOCIETY'S LIVING COLLECTION<sup>1</sup>

### X.

26. **THE MALAYAN TAPIR** (*Tapirus indicus*).—In the present condition of zoological life on the world's surface there is no better instance of discontinuous distribution than that of the Tapirs. While Tropical America contains several species of *Tapirus*, and may be regarded as the focus of the genus, a single well-marked species—not, however, sufficiently distinct, even in the eyes of those most fond of inventing new names, for generic separation—occurs in Tropical Asia. This is the Malayan or Indian Tapir, *Tapirus indicus* (sive *malayanus*) of systematists.

The discovery of this Tapir in Sumatra, where it was first met with, though claimed by Cuvier for French natu-

ralists, is undoubtedly due to those of our own country. Marsden described the animal in his work on Sumatra as long ago as 1785, and Raffles obtained a knowledge of it in 1805. In 1818 a living example, captured near Bencoolen, was sent to the menagerie at Barrackpore, and was the subject of a drawing, forwarded to Cuvier by Diard and Duvaneel, which first made the great French philosopher acquainted with the existence of this animal.

The first example of the Malayan Tapir sent to Europe likewise came to this country. It was received in September, 1820, from Sir Stamford Raffles, and was the subject of an excellent memoir by the great surgeon and anatomist, Sir Everard Home, which was published in the *Philosophical Transactions* for 1821.

The Zoological Society of London acquired their first living specimen of this animal by purchase of Capt. Miland in September, 1840. This example died on April 17 in the following year. Although one or two specimens of the Indian Tapir passed through this country at subsequent intervals, it was not until the present year that the Society succeeded in obtaining possession of a second specimen. This was a young individual of the male sex, from which our illustration (Fig. 26) was taken by Mr. Smit in August last. It will be observed that although the large white area which covers the hinder quarters like a sheet, and renders the Indian Tapir so readily distinguishable from all its American brethren, is easily distinguishable in this drawing, the stripes and spots, which prevail in the younger dress of all the Tapirs, are still quite distinct. These disappear altogether when the animal is quite adult, leaving the entire body, with exception of the white back, of a glossy brownish black. The Indian Tapir is further distinguishable from all the American species by the absence of the mane, and by the minute structure of the teeth.<sup>1</sup> Unfortunately the Zoological Society's second specimen did not live to exhibit its adult characters, but died in October last in consequence of a disease of the rectum, which seems often to afflict these animals in captivity.

Besides Sumatra, where the Dutch naturalist, Salomon Müller, found it on the west coast up to a height of 2000 feet above the sea-level, the Malayan Tapir inhabits the interior of Borneo and the Malay Peninsula. There is also good evidence that a Tapir of some sort is found in the south-western provinces of China, which is probably of the same species.

In its native state the Indian Tapir is exclusively an inhabitant of the forest, keeping principally to the vicinity of the rivers and treading paths by following the same routes during its excursions from the banks in search of food. In captivity it becomes very tame and familiar. Dr. Cantor gives us the following account of a young female specimen which was captured in Keddah in 1845, and lived many months at his station in Malacca:—

"From the first, although fresh from its native wilds, this young Tapir showed a remarkably gentle disposition. The daytime it spent in sleeping in a dark recess of the portico of my house, though it would rouse itself if noticed. Towards sunset it became lively, would bathe, feed, saunter abroad, and with its lengthened nose examine objects in the way. Within a few days after its arrival it commenced to exhibit a marked partiality to the society of man, not indeed to its keeper in particular, whom it scarcely had discrimination enough to distinguish, but to anybody who happened to notice or caress it. Towards sunset it would follow a servant on the green in front of the house, and punctually imitate his movements, whether standing, walking, or running. If the man suddenly hid himself, the Tapir would hasten to the spot where it had lost sight of its keeper, look about in all directions, and if unsuccessful in discovering him, express its disappointment by a peculiar loud whistling. On the reappearance of the man, it expressed its pleasure

<sup>1</sup> Continued from vol. xxvi. p. 666.

<sup>1</sup> Cf. Tomes in *Proc. Zool. Soc.*, 1851, p. 121.